

## CLAIMS

What is claimed is:

1. A fiber optic switch, comprising an array of actuated mirrors for switching optic signals from a plurality of input optic fibers onto a plurality of output optic fibers.

2. A fiber optic switch as recited in claim 1, wherein separate wavelength channels on each input optic fiber are switched independently by said array of mirrors.

3. A fiber optic switch as recited in claim 1, further comprising a plurality of optical elements for positioning optical beams from said input optic fibers onto said array of mirrors.

4. A fiber optic switch as recited in claim 1, further comprising a plurality of optical elements for positioning optical beams reflected from said array of mirrors onto said output fibers.

5. A fiber optic switch as recited in claim 1, further comprising:

(a) a wavelength dispersive element; and

(b) a plurality of lenses associated with said first wavelength dispersive element;

(c) wherein said wavelength dispersive element and said plurality of lenses position optical beams from said input optical fibers onto said array of mirrors.

6. A fiber optic switch as recited in claim 5, wherein said wavelength dispersive element comprises a diffraction grating.

5 7. A fiber optic switch as recited in claim 5, wherein said wavelength dispersive element comprises a prism.

8. A fiber optic switch as recited in claim 5, further comprising:

(a) a second wavelength dispersive element; and

10 (b) a second plurality of lenses associated with said second wavelength dispersive element;

(c) wherein said second wavelength dispersive element and said second plurality of lenses position optical beams reflected by said array of mirrors onto said output optic fibers.

15 9. A fiber optic switch as recited in claim 8, wherein at least one of said wavelength dispersive elements comprises a diffraction grating.

20 10. A fiber optic switch as recited in claim 8, wherein at least one of said wavelength dispersive elements comprises a prism.

11. A fiber optic switch, comprising:

(a) an array of actuated mirrors for switching optic signals from a plurality of input optic fibers onto a plurality of output optic fibers;

(b) a wavelength dispersive element; and

5 (c) a plurality of lenses associated with said wavelength dispersive element;

(d) wherein said wavelength dispersive element and said plurality of lenses position optical beams from said input optical fibers onto said array of mirrors.

12. A fiber optic switch as recited in claim 12, wherein separate wavelength channels on each input optic fiber are switched independently by said array of mirrors.

13. A fiber optic switch as recited in claim 11, wherein said wavelength dispersive element comprises a diffraction grating.

14. A fiber optic switch as recited in claim 11, wherein said wavelength dispersive element comprises a prism.

15. A fiber optic switch as recited in claim 11, further comprising:

(a) a second wavelength dispersive element; and

20 (b) a second plurality of lenses associated with said second wavelength dispersive element;

(c) wherein said second wavelength dispersive element and said second plurality of lenses position optical beams reflected by said array of mirrors onto said output optic fibers.

5 16. A fiber optic switch as recited in claim 15, wherein at least one of said wavelength dispersive elements comprises a diffraction grating.

17. A fiber optic switch as recited in claim 15, wherein at least one of said wavelength dispersive elements comprises a prism.

10 18. A fiber optic switch, comprising:

(a) an array of actuated mirrors for switching optic signals from a plurality of input optic fibers onto a plurality of output optic fibers;

(b) a first wavelength dispersive element;

15 (c) a first plurality of lenses associated with said first wavelength dispersive element;

(d) a second wavelength dispersive element; and

(e) a second plurality of lenses associated with said second wavelength dispersive element;

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(f) wherein said first wavelength dispersive element and said first plurality of lenses position optical beams from said input optical fibers onto said array of mirrors and wherein said second wavelength dispersive element and said second plurality of lenses position optical beams reflected by said array of mirrors onto said output optic  
5 fibers.

19. A fiber optic switch as recited in claim 18, wherein separate wavelength channels on each input optic fiber are switched independently by said array of mirrors.

10 20. A fiber optic switch as recited in claim 18, wherein at least one of said wavelength dispersive elements comprises a diffraction grating.

15 21. A fiber optic switch as recited in claim 18, wherein at least one of said wavelength dispersive elements comprises a prism.

22. A fiber optic switch, comprising:

- (a) a plurality of input optic fibers;
- (b) a plurality of output optic fibers;
- (c) an array of actuated mirrors for switching optical signals from said input  
20 optic fibers onto said output optic fibers;
- (d) a first wavelength dispersive element;

(e) a first plurality of lenses associated with said first wavelength dispersive element;

(f) a second wavelength dispersive element; and

(g) a second plurality of lenses associated with said second wavelength dispersive element;

(h) wherein said first wavelength dispersive element and said first plurality of lenses position optical beams from said input optical fibers onto said array of mirrors and wherein said second wavelength dispersive element and said second plurality of lenses position optical beams reflected by said array of mirrors onto said output optical fibers.

23. A fiber optic switch as recited in claim 22, wherein separate wavelength channels on each input optical fiber are switched independently by said array of mirrors.

24. A fiber optic switch as recited in claim 22, wherein at least one of said wavelength dispersive elements comprises a diffraction grating.

25. A fiber optic switch as recited in claim 22, wherein at least one of said wavelength dispersive elements comprises a prism.

26. A fiber optic spectrometer, comprising:

(a) a fiber optic input path;

- (b) a fiber optic output path;  
(c) a detector; and  
(d) an array of actuated mirrors for switching optic signals from said fiber optic input path to said fiber optic output path or said detector.

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27. A fiber optic spectrometer as recited in claim 26, further comprising:  
(a) a wavelength dispersive element; and  
(b) a lens associated with said wavelength dispersive element;  
(c) wherein said wavelength dispersive element and said lens positions optical beams from said fiber optic input path onto said array of mirrors.

28. A fiber optic spectrometer as recited in claim 27, wherein said fiber optic input path and said fiber optic output path share a single optic fiber.

29. A fiber optic spectrometer as recited in claim 27, wherein said fiber optic input path and said fiber optic output path are carried by separate optic fibers.

30. A fiber optic spectrometer, comprising:

- (a) an input optic fiber;  
(b) an output optic fiber;  
(c) a detector;

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optical beams from said input optical fiber onto said ~~array~~ of mirrors.

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